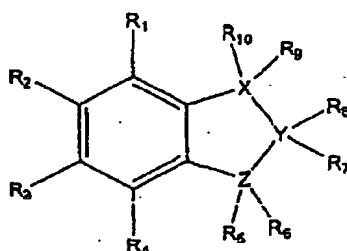


## WHAT IS CLAIMED IS:

1. Use of a compound having the general Formula I:



Formula I

a pharmaceutically acceptable salt thereof or a prodrug thereof,  
wherein:

X, Y and Z are each independently selected from the group consisting of carbon, oxygen, sulfur, CR<sub>11</sub>R<sub>12</sub> or R<sub>13</sub>R<sub>14</sub>C-CR<sub>15</sub>R<sub>16</sub>, provided that at least one of X, Y and Z is oxygen or sulfur; and

R<sub>1</sub>-R<sub>16</sub> are each independently selected from the group consisting of hydrogen, lone pair electrons, hydroxy, alkyl, cycloalkyl, phenyl, alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, phenol, hydroxyphenol, dihydroxyphenol, aryl, alkenyl, alkynyl, heteroaryl, heteroalicyclic, halo, alkoxy, aryloxy, thiohydroxy, thioalkoxy, thioaryloxy, C-carboxy, O-carboxy, thiocarboxy, carbonyl, oxo, thiocarbonyl, sulfinyl, and sulfonyl, or absent, or, alternatively, at least two of R<sub>1</sub>-R<sub>4</sub> and/or at least two of R<sub>5</sub>-R<sub>16</sub> form at least one five- or six-membered aromatic, heteroaromatic, alicyclic or heteroalicyclic ring,

whereas:

at least one of R<sub>1</sub>-R<sub>4</sub> is selected from the group consisting of hydroxy, thiohydroxy, alkoxy, thioalkoxy, aryloxy, thioaryloxy, carboxy and thiocarboxy; and/or

at least one of  $R_5$ - $R_{16}$  comprises phenol, alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, hydroxyphenol, and dihydroxyphenol,

with the proviso that when X is carbon and Y is  $R_{13}R_{14}C-CR_{15}R_{16}$ , Z is carbon or sulfur,

for the manufacture of a medicament identified for the treatment of amyloid-associated diseases.

2. The use of claim 1, wherein:

X is carbon;

Y is oxygen;

Z is carbon or sulfur; and

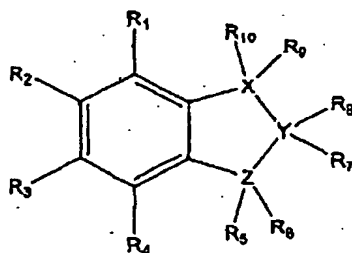
at least one of  $R_5$  and  $R_6$  is oxo.

3. The use of claim 2, wherein at least one of  $R_9$  and  $R_{10}$  is selected from the group consisting of alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, phenol, hydroxyphenol and dihydroxyphenol.

4. The use of claim 1, wherein said compound is selected from the group consisting of phenol red, dimethoxy phenol red, methoxy phenol red, diacetoxy phenol red, acetoxy phenol red, pyrocatechol violet, phenolphthaleine, hydroxyphenyl, and bromophenol red.

5. An article-of-manufacture comprising a packaging material and a pharmaceutical composition identified for treating amyloid-associated diseases being contained within said packaging material, said pharmaceutical composition including, as an active ingredient, a compound having the general Formula I:

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Formula I

a pharmaceutically acceptable salt thereof or a prodrug thereof,  
wherein:

X, Y and Z are each independently selected from the group consisting of carbon, oxygen, sulfur,  $\text{CR}_{11}\text{R}_{12}$  or  $\text{R}_{13}\text{R}_{14}\text{C}-\text{CR}_{15}\text{R}_{16}$ , provided that at least one of X, Y and Z is oxygen or sulfur; and

$\text{R}_1\text{-R}_{16}$  are each independently selected from the group consisting of hydrogen, lone pair electrons, hydroxy, alkyl, cycloalkyl, phenyl, alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, phenol, hydroxyphenol, dihydroxyphenol, aryl, alkenyl, alkynyl, heteroaryl, heteroalicyclic, halo, alkoxy, aryloxy, thiohydroxy, thioalkoxy, thioaryloxy, C-carboxy, O-carboxy, thiocarboxy, carbonyl, oxo, thiocarbonyl, sulfinyl, and sulfonyl, or absent, or, alternatively, at least two of  $\text{R}_1\text{-R}_4$  and/or at least two of  $\text{R}_5\text{-R}_{16}$  form at least one five- or six-membered aromatic, heteroaromatic, alicyclic or heteroalicyclic ring,

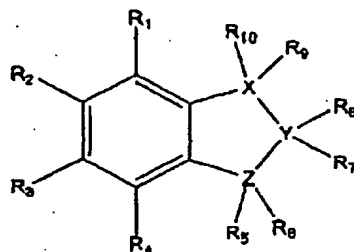
whereas:

at least one of  $\text{R}_1\text{-R}_4$  is selected from the group consisting of hydroxy, thiohydroxy, alkoxy, thioalkoxy, aryloxy, thioaryloxy, carboxy and thiocarboxy; and/or

at least one of  $\text{R}_5\text{-R}_{16}$  comprises phenol, alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, hydroxyphenol, and dihydroxyphenol,

with the proviso that when X is carbon and Y is  $\text{R}_{13}\text{R}_{14}\text{C}-\text{CR}_{15}\text{R}_{16}$ , Z is carbon or sulfur, and a pharmaceutically acceptable carrier.

6. The article-of-manufacture of claim 5, wherein:  
X is carbon;  
Y is oxygen;  
Z is carbon or sulfur; and  
at least one of R<sub>5</sub> and R<sub>6</sub> is oxo.
7. The article-of-manufacture of claim 6, wherein at least one of R<sub>9</sub> and R<sub>10</sub> is selected from the group consisting of alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, phenol, hydroxyphenol and dihydroxyphenol.
8. The article-of-manufacture of claim 5, wherein said compound is selected from the group consisting of phenol red, dimethoxy phenol red, methoxy phenol red, diacetoxy phenol red, acetoxy phenol red, pyrocatechol violet, phenolphthaleine, hydroxyphenyl, tocopherol, and bromophenol red.
9. A method of treating an amyloid-associated disease in a subject, the method comprising administering to a subject in need thereof, a therapeutically effective amount of a compound having the general Formula I:



Formula I

a pharmaceutically acceptable salt thereof or a prodrug thereof,  
wherein,

X, Y and Z are each independently selected from the group consisting of carbon, oxygen, sulfur,  $CR_{11}R_{12}$  or  $R_{13}R_{14}C-CR_{15}R_{16}$ , provided that at least one of X, Y and Z is oxygen or sulfur; and

$R_1-R_{16}$  are each independently selected from the group consisting of hydrogen, lone pair electrons, hydroxy, alkyl, cycloalkyl, phenyl, alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, phenol, hydroxyphenol, dihydroxyphenol, aryl, alkenyl, alkynyl, heteroaryl, heteroalicyclic, halo, alkoxy, aryloxy, thiohydroxy, thioalkoxy, thioaryloxy, C-carboxy, O-carboxy, thiocarboxy, carbonyl, oxo, thiocarbonyl, sulfinyl, and sulfonyl, or absent, or, alternatively, at least two of  $R_1-R_4$  and/or at least two of  $R_5-R_{16}$  form at least one five- or six-membered aromatic, heteroaromatic, alicyclic or heteroalicyclic ring,

whereas,

at least one of  $R_1-R_4$  is selected from the group consisting of hydroxy, thiohydroxy, alkoxy, thioalkoxy, aryloxy, thioaryloxy, carboxy and thiocarboxy; and/or

at least one of  $R_5-R_{16}$  comprises phenol, alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, hydroxyphenol, and dihydroxyphenol,

with the proviso that when X is carbon and Y is  $R_{13}R_{14}C-CR_{15}R_{16}$ , Z is carbon or sulfur, thereby treating the amyloid-associated disease in the subject.

10. The method of claim 9, wherein said administering is effected at a concentration of said compound not exceeding 4mg/Kg body weight/hour.

11. The method of claim 9, wherein said administering is effected orally.

12. The method of claim 9, wherein:

X is carbon;

Y is oxygen;

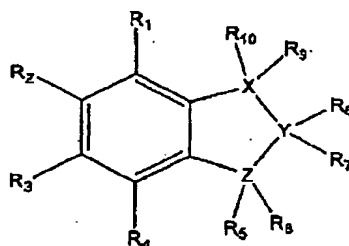
Z is carbon or sulfur; and

at least one of  $R_5$  and  $R_6$  is oxo.

13. The method of claim 12, wherein at least one of  $R_9$  and  $R_{10}$  is selected from the group consisting of alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, phenol, hydroxyphenol and dihydroxyphenol.

14. The method of claim 9, wherein said compound is selected from the group consisting of phenol red, dimethoxy phenol red, methoxy phenol red, diacetoxy phenol red, acetoxy phenol red, pyrocatechol violet, phenolphthaleine, hydroxyphenyl, tocopherol, and bromophenol red.

15. A pharmaceutical composition, for use in the treatment of amyloid-associated diseases, comprising a therapeutically effective amount of a compound having the general Formula I:



Formula I

a pharmaceutically acceptable salt thereof or a prodrug thereof,  
wherein,

X, Y and Z are each independently selected from the group consisting of carbon, oxygen, sulfur,  $CR_{11}R_{12}$  or  $R_{13}R_{14}C-CR_{15}R_{16}$ , provided that at least one of X, Y and Z is oxygen or sulfur; and

$R_1-R_{16}$  are each independently selected from the group consisting of hydrogen, lone pair electrons, hydroxy, alkyl, cycloalkyl, phenyl, alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, phenol, hydroxyphenol, dihydroxyphenol, aryl, alkenyl, alkynyl, heteroaryl, heteroalicyclic, halo, alkoxy, aryloxy, thiohydroxy, thioalkoxy,

thioaryloxy, C-carboxy, O-carboxy, thiocarboxy, carbonyl, oxo, thiocarbonyl, sulfinyl, and sulfonyl, or absent, or, alternatively, at least two of  $R_1$ - $R_4$  and/or at least two of  $R_5$ - $R_{16}$  form at least one five- or six-membered aromatic, heteroaromatic, alicyclic or heteroalicyclic ring,

whereas:

at least one of  $R_1$ - $R_4$  is selected from the group consisting of hydroxy, thiohydroxy, alkoxy, thioalkoxy, aryloxy, thioaryloxy, carboxy and thiocarboxy; and/or

at least one of  $R_5$ - $R_{16}$  comprises phenol, alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, hydroxyphenol, and dihydroxyphenol,

with the proviso that when X is carbon and Y is  $R_{13}R_{14}C-CR_{15}R_{16}$ , Z is carbon or sulfur, and a pharmaceutically acceptable carrier.

16. The pharmaceutical composition of claim 15, wherein:

X is carbon;

Y is oxygen;

Z is carbon or sulfur; and

at least one of  $R_5$  and  $R_6$  is oxo.

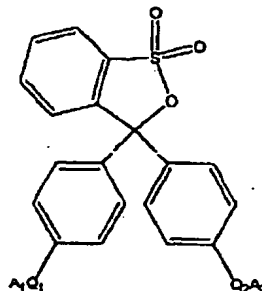
17. The pharmaceutical composition of claim 16, wherein at least one of  $R_9$  and  $R_{10}$  is selected from the group consisting of alkoxyphenyl, thioalkoxyphenyl, aryloxyphenyl, thioaryloxyphenyl, carboxyphenyl, thiocarboxyphenyl, phenol, hydroxyphenol and dihydroxyphenol.

18. The pharmaceutical composition of claim 15, wherein said compound is selected from the group consisting of phenol red, dimethoxy phenol red, methoxy phenol red, diacetoxym phenol red, acetoxym phenol red, pyrocatechol violet, phenolphthaleine, hydroxyphenyl, tocopherol, and bromophenol red.

19. The pharmaceutical composition of claim 15, further comprising an anti-amyloid drug.

20. The pharmaceutical composition of claim 19, wherein said anti-amyloid drug is selected from the group consisting of an amyloid-destabilizing antibody, an amyloid-destabilizing peptide and an anti-amyloid small molecule.

21. A compound having the general formula II:



Formula II

a pharmaceutically acceptable salt thereof or a prodrug thereof,  
wherein:

Q<sub>1</sub> and Q<sub>2</sub> are each independently selected from the group consisting of oxygen and sulfur; and

A<sub>1</sub> and A<sub>2</sub> are each independently selected from the group consisting of hydrogen, alkyl, aryl, cycloalkyl and carbonyl,

whereas when Q<sub>1</sub> and Q<sub>2</sub> are each oxygen, one of A<sub>1</sub> and A<sub>2</sub> is hydrogen and the other is selected from the group consisting of alkyl, cycloalkyl, aryl and carbonyl.

22. The compound of claim 21, wherein Q<sub>1</sub> and Q<sub>2</sub> are each oxygen, one of A<sub>1</sub> and A<sub>2</sub> is hydrogen and the other is methyl.

23. The compound of claim 21, wherein Q<sub>1</sub> and Q<sub>2</sub> are each oxygen, one of A<sub>1</sub> and A<sub>2</sub> is hydrogen and the other is acetyl.